

THE INTERNATIONAL HEALTH AND EDUCATION EXHIBITION

THERE is at first sight some lack of unity of purpose in an exhibition which undertakes to illustrate such diverse subjects as health and public education. This impression will be in the present case confirmed partly by the postponement of the opening of the Educational Section to the month of June, and partly by the fact that the display of educational appliances will be held in the neighbouring building, the new Technical School of the City and Guilds of London Institute, and not in the galleries of the Exhibition building itself. A mere miscellaneous collection of objects more or less illustrative of school work, *e.g.* furniture, fittings, apparatus, and diagrams, would, however, prove of little general interest and value, unless it were on a very comprehensive scale. The Executive Committee, therefore, have wisely decided to limit the scope of the educational part of the Exhibition of the present year, and to direct the attention of exhibitors mainly to the elucidation of a few special problems which possess exceptional importance or public interest at the present time. Foremost among these are the subjects of technical and scientific instruction, trade and apprenticeship schools, the teaching of art, and the Kindergarten with other devices for infant training. The accidental association of this part of the Exhibition with one devoted to the subject of health has also naturally suggested another class of illustrative display likely to prove particularly interesting to school managers and the public at this moment. While the Executive Committee has shown no disposition to encourage the absurdly exaggerated and not very sincere outcry which has been raised about the "over-pressure" of children in schools, they have shown much judgment in giving special prominence to those "exhibits" which are designed to illustrate the conditions of healthy life in schools. Accordingly, models of the best school buildings, appliances for warming, lighting, and ventilating, improved desks and fittings, contrivances for securing right posture for the limbs and for preventing injury to eyesight, precautions against disease in schools, will be largely shown. The whole subject of physical training will also, it is expected, be illustrated with unusual fullness and variety. Models and examples of the latest and best forms of gymnastic apparatus in use in England and in foreign countries will be shown; and arrangements are being made, with the sanction of the heads of the Admiralty and of the War Office, for the practical exposition of the methods of military drill in use in the great military and naval schools at Chelsea and Greenwich, on certain afternoons on which the boys can be spared for this purpose from their ordinary school duties.

The increased attention now being directed to the whole subject of infant training; the extended interest taken by the best teachers in the study of the methods of Fröbel; and the recognition by the Education Department for the first time, in Mr. Mundella's Code, of the need of training, object lessons, recreation, and varied employment in infant schools, as well as instruction in reading, writing, and arithmetic, have justified the appropriation of a considerable space to the Kindergarten, and to the exhibition of pictures, games, manual exercises, and apparatus specially adapted for the training of very young children, whether in schools or nurseries. There is reason to believe that this department of the display will be especially full and interesting, and will comprise some of the latest and most ingenious of the devices for infant discipline which are in use in Germany and Switzerland, as well as in our own country.

Closely connected also with the general design of the Exhibition to show how school-life may be made healthier, brighter, happier, and more interesting, there will be a considerable display of pictures and school de-

corations. The "Art for Schools Association" and other exhibitors will seek to show how the school-room may be incidentally useful in improving the taste and stimulating the imagination of the scholars; and it may be hoped that many teachers will gather from the Exhibition some fruitful suggestions as to the manner in which art may give added reality and force to lessons on history, on descriptive geography, on the facts of science, and on the life of the ancient world.

The London, Birmingham, and other School Boards have arranged for collective displays of their best fittings, desks, and other apparatus. Illustrations and models of school kitchens, cookery schools, and the latest appliances for the practical teaching of domestic economy will be tolerably numerous; and special pains have been taken by those members of the Education Committee who have recently served on the Technical Instruction Commission to procure some of the most characteristic illustrations of the methods of technical and industrial teaching in use in the trade and apprentice schools of the Continent.

There will be a library and reading room attached to the educational department of the Exhibition; and a large collection of the newest text-books, treatises, diagrams, and works of reference having relation to the subject of the Exhibition will be so arranged that they may easily be consulted by visitors.

One very interesting feature of the whole programme will be found in the plan—not yet fully matured—for an International Congress or series of Conferences to be held in connection with the Exhibition during the first week in August. A large attendance of delegates from foreign countries is expected, and some of the most important educational problems of the day will be discussed. The sub-Committee, which has spent much time in arranging the details, is representative in its character, and consists of Lord Reay, the Hon. L. Stanley, two of the Senior Inspectors of Schools, Mr. Sharpe and Mr. J. G. Fitch, Archdeacon Emery, the Rev. Dr. Graham of the Hammersmith Training College, Mr. Storr, Mr. Magnus, Mr. St. John Ackers, and Dr. Rigg. So far as the arrangements have yet been published, they promise to provide a series of valuable public discussions, by persons of authority in their special departments, on the organisation of primary, secondary, and university education; on the conditions of health and physical development in schools; on the professional training of teachers, the testing of their qualifications, and the public recognition of those qualifications; on several special departments of instruction, *e.g.* infant training, art teaching, science and technical teaching; and on museums, libraries, and other subsidiary agencies by which the influence of the school may be extended to the home life, to leisure, and to the means of self-improvement.

NOTES

THE Council of the Royal Society have selected the following fifteen candidates to be recommended for election at the annual meeting on June 12 next:—Prof. George Johnston Allman, LL.D., Prof. Isaac Bayley Balfour, D.Sc., Joseph Baxendell, F.R.A.S., James Bell, F.I.C., Prof. Walter Noel Hartley, F.R.S.E., Prof. Alexander Stewart Herschel, M.A., Wilfrid II. Huddleston, M.A., Prof. Horace Lamb, M.A., Prof. John G. McKendrick, M.D., Arthur Ransome, M.D., Prof. Charles Smart Roy, M.D., Prof. Arthur William Rücker, M.A., Joseph John Thomson, B.A., Lieut.-Col. Charles Warren, C.M.G., and Prof. Morrison Watson, M.D.

THE following three *savants* were elected Foreign Members of the Linnean Society at the last meeting, May 1:—Dr. Ernst Haeckel, Professor of Zoology and Director of the Zoological Institut, Museum, University of Jena, among other things well known for his studies of Sponges, Radiolarians, Medusæ, &c.;

Dr. Alexander Kowalevsky, Professor and Director of the Zoological Cabinet, &c., in the University of Odessa, notable for his anatomical and embryological researches on the Tunicates, Holothurians, Coelenterata, &c.; and Dr. S. Schwendener, Professor of Botany, University of Berlin, whose labours in cryptogamic botany, more especially Lichens and Algæ, receive due appreciation by his kindred workers on these and allied topics.

A CIRCULAR signed by Prof. Ray Lankester, Secretary *pro tem.*, and Mr. Frank Crisp, Treasurer *pro tem.*, has been issued from Burlington House, London, with reference to the proposed "Marine Biological Association of the United Kingdom." The object of the Society, as explained by the speeches made at the meeting of March 31, is to erect and maintain at suitable points on the coast one or more laboratories similar to the Zoological Station of Naples and the American Laboratories of Newport and Chesapeake, to which naturalists may resort for the purpose of investigating the history of marine life, both animal and vegetable, and the various conditions affecting the welfare of British food-fishes and mollusks. It is proposed, in the first place, to establish a laboratory on the south coast of England. To build this laboratory and equip it in an efficient manner with boats, dredging apparatus, and tanks, a sum of not less than 10,000*l.* is desirable, whilst an income of not less than 1500*l.* a year will be required to maintain it and to pay the wages of attendants and fishermen and the salary of a resident superintendent. The Provisional Committee, as authorised by the meeting on March 31, has made the following rules with regard to membership of the Society:—"The Members of the Society shall consist of three classes—(a) Donors of 500*l.* and upwards to the Society, who shall be Governors and permanent Members of the Council. (b) Donors of 100*l.* to the Society, who shall be Founders and Members of the Society for life. (c) Annual Subscribers of 1*l.* 1*s.* The subscription may be compounded for at any time by a payment of 15*l.* 15*s.*" The members of the Society will shortly meet to elect a Council and Officers, and to adopt a constitution and rules. It is proposed that the members shall meet at least once a year for the purpose of electing a Council and transacting other business, and they will receive reports of the work done by the Society, and especially of the investigations carried out in the laboratory maintained by its agency. In addition to the fixed contributions above mentioned in connection with membership, the Committee invite special donations towards defraying the expenses of erecting the first laboratory. Those desiring to become members should communicate as soon as possible with the Treasurer, at 6, Old Jewry, E.C.

THE Annual Meeting of the Academy of Sciences of Paris was held on Monday, M. Blanchard, president for 1883, being in the chair. M. Blanchard opened the sitting by an address, reciting all the losses that the Academy had sustained during the past year. He dwelt principally on the exceptional eminence of M. Dumas. He summarised also the several scientific expeditions which had been fitted out by the French Government during the year after having taken the advice of the French Academy. M. Bouley read the list of the awards granted by the several academical commissions, and which is too long to be reproduced in our columns, the number of these foundations being yearly enlarged; thus far no less than three prizes were distributed for the first time—the Penaud Prize for progress in Aëronautics to MM. Tissandier, Taton, and Leroy de Brognac, and two prizes by Le Petit d'Ormay, one for physical sciences, and the other for mathematics. The interest of the Bréant Prize (4000*l.*) for curing the cholera was bestowed on M. Pasteur's pupils, who have studied the subject in Egypt on the spot. One of the astronomical prizes was given to M. Stephan of Marseilles, and the other to several members of the transit missions not belonging to the

Academy. Gold medals were distributed to the marine officers who took part in the expedition of the *Travailleur* under Milne-Edwards for exploring the Atlantic, and to those who wintered with the *Romanche* in Terra del Fuego, in connection with other Polar expeditions. M. Bertrand read the *éloge* which had been written by M. Dumas on the brothers Deville, both of them members of the Academy of Sciences, who died, Charles, the geologist, in 1876, and Henry in 1881, both at the same age. After having read this address on behalf of his illustrious colleague, M. Bertrand read for himself an *éloge* on Puiseux, a Member of the Mathematical Section.

THE following, according to *Science*, is a complete list of the papers read at the meeting of the United States National Academy of Sciences, April 15 to 18:—G. K. Gilbert, the sufficiency of terrestrial rotation to deflect river-courses; T. Sterry Hunt, the origin of crystalline rocks; Simon Newcomb, on the photographs of the transit of Venus taken at the Lick Observatory; A. E. Verrill, zoological results of the deep-sea dredging expedition of the U.S. Fish Commission steamer *Albatross*; Ira Remsen, the quantitative estimation of carbon in ordinary phosphorus; reduction of halogen derivatives of carbon compounds; Elias Loomis, reduction of barometric observations to sea-level; C. S. Peirce, the study of comparative biography; C. S. Peirce and J. Jastrow (by invitation), whether there is a minimum perceptible difference of sensation; S. P. Langley, the character of the heat radiated from the soil; J. E. Hilgard, on the depth of the western part of the Atlantic Ocean and Gulf of Mexico, with an exhibition of a relief model; on the relative levels of the western part of the Atlantic Ocean and Gulf of Mexico with respect to the Gulf Stream; account of some recent pendulum experiments in different parts of the world, made in connection with the U.S. Coast and Geodetic Survey; E. D. Cope, on the structure and affinities of *Didymodus*, a still living genus of sharks of the Carboniferous period; on the North American species of mastodon; Theo. Gill and John A. Ryder (by invitation), the characteristics of the lyomerous fishes; on the classification of the apodal fishes; Theo. Gill, on the ichthyological peculiarities of the bassalian realm; George F. Barker, on the Fritts selenium cell; on a lantern voltmeter; George J. Brush, on the occurrence of mercury in native silver from Lake Superior; H. A. Rowland, progress in making a new photograph of the spectrum; B. Silliman, on the existence of tin ore in the older rocks of the Blue Ridge; H. M. Paul (by invitation), the Krakatoa atmospheric waves, and the question of a connection between barometric pressure and atmospheric electricity; John S. Billings, memorandum on composite photographs in craniology; A. W. Wright, some experiments upon the spectra of oxygen; Elliott Coues, on the application of trinomial nomenclature to zoology; E. M. Gallaudet (by invitation), some recent results of the oral and aural teaching of the deaf, under the combined system; F. W. Clarke (by invitation), jade implements from Alaska; Henry L. Abbot, recent progress in electrical fuses; J. S. Diller (by invitation), the volcanic sand which fell at Unalashka, October 20, 1883, and some considerations concerning its composition. The following biographical notices of deceased members were also read:—Of Gen. G. K. Warren, by H. L. Abbot; of Prof. Stephen Alexander, by C. A. Young; of Dr. J. Lawrence Smith, by B. Silliman; and of Dr. John L. LeConte, by S. H. Scudder.

ON Saturday last a banquet was given by a number of anthropologists to M. Gabriel de Mortillet, Conservator of the St. Germain Museum of National Antiquities, and his portrait, was presented to him. M. de Mortillet stated that his usual summer excursion would take place this month or in the beginning of June, and that Brittany would be chosen as a field for exploration. Any person wishing to join the Professor

in his scientific tour may write to M. de Mortillet at the Château de Saint Germain. The banquet hall was decorated with a life-size picture of an early Gaul. The picture was executed according to the last discoveries of M. de Mortillet. The man is represented as having no hair on his body; his arms are very long and muscles very powerful, but the toes of his feet are not opposable, although they could be used for climbing the trees of the primitive forest. His jaw is strongly prognathous, but not at all equal to that of an anthropoid ape. His breadth is strongly compressed laterally and his abdomen prominent. The skin is not negroid, but of our present colour. The expression of the face is in intelligence on a level with that of an Australian.

ANTHROPOLOGY plays a great part in the Paris *salon* this year. One of the largest pictures, attracting the attention of crowds, represents a primæval tribe preparing in their cave to feed upon an *Ursus speleus* which has been killed by the warriors with their stone implements.

THE spring meeting of the Institution of Mechanical Engineers was held at the Institution of Civil Engineers on May 1 and 2. The most interesting paper read was on the Consumption of Fuel in Locomotives, by M. Georges Marié, Engineer to the Paris and Lyons Railways. This paper is of considerable importance as bearing on the actual economy of the locomotive considered as a heat engine. The chief conclusion is that the locomotive is a better engine, as regards economy of fuel, than is usually believed, and cannot be very much improved unless the pressure in the boiler can be increased at one end or a condenser applied at the other. The author looks forward confidently to both these improvements, but when achieved they will, he considers, necessitate an improvement in the valve gear, and probably the use of compound engines on the scheme now brought forward by Mr. Webb. With these and with some other improvements, such as a better clothing of the boiler and the heating of the feed-water by the exhaust-steam, M. Marié looks forward to the locomotive attaining a position, as regards economy of fuel, much beyond even that which it possesses at present. The other papers read were entirely of a practical character, with the exception of one by Mr. Robert Gordon, of Burmah, describing the apparatus used at Mr. Froude's works at Torquay, for testing current meters. The arrangement of the tank, dynamometer, governor, &c., is clearly described, but would hardly be intelligible without the aid of drawings.

WE are glad to direct the attention of our readers to the *Health Journal*, published by Heywood of Manchester, and which, with the May number, has concluded its first volume. The *Journal* is a monthly review "of sanitary science and of voluntary effort for the public good." It seems to us to be admirably calculated to serve the purpose for which it has been established, and we hope it will receive all the encouragement it deserves.

THE recent threat of certain French journals that their troops would occupy the island of Hainan until China had paid an indemnity has directed attention to that little-known appendage of the Chinese Empire. In a late number of that valuable periodical, the *China Review*, we find an account of a journey through Hainan by Mr. Henry. As in other outlying possessions of China, the native tribes have succeeded in a measure in holding their own against the ubiquitous Chinese. The northern part of the island is described as a large plain, while the central and southern portions are mountainous. Here the aboriginal tribes, the Les, take refuge. They are cordial and hospitable to strangers, and are probably of Malay origin. There are fifteen or sixteen different tribes, known under distinct names, varying more or less in dress, language, and customs, but all evidently belonging to one homogeneous race, bound together by common

ties, and, as a rule, living on friendly terms with each other. The flora and fauna appear singularly rich, and but little investigated. In a visit of a few weeks the late Mr. Swinhoe noted 172 species of birds, nineteen of which were new to science, and were first described by him. The leeches are an especial plague to the traveller. They are described as of a grayish-brown and earthen hue, and vary from half an inch to an inch and a half in length, and swarm from the ground on all sides. Along the path, on the ends of grass blades and branches of shrubs, they may be seen holding by one end, while they reach out their whole length feeling on every side for their prey. The instant they touch foot or hand, or any part of the body, they take fast hold, and can only be detached by the application of fire, or when they are sated with blood. The natives carry bamboo sticks, with which by a quick motion they can sometimes detach them. Although the people appear in a state of rural prosperity, as there is very little foreign trade, while the climate is bad, it is difficult to see what France would gain by the occupation of the island.

REPORTS from Mount Hamilton, California, *Science* states, say that this has been the most stormy winter known since observations were begun at the Lick Observatory. The bad weather did not begin till so late in January that a drought in California was feared; but there have been 40 inches of rain and melted snow up to April 4, and at that date the mountain was covered with 2 feet of snow. The anemometer cups were blown away, with the wind-gauge indicating 65 miles per hour. The lowest temperature has been +12°; and at this temperature outside water did not freeze within the uncompleted buildings.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus rhesus* ♀) from India, presented by Miss Harbord; a Pig-tailed Monkey (*Macacus nemestrinus*) from Java, presented by Miss Ethel Fenwick; a Macaque Monkey (*Macacus cynomolgus* ♂) from India, presented by Mr. F. Harrison; a Garnett's Galago (*Gulago garnetti* ♂) from Eastern Africa, presented by Lieut. James Knowles, R.N.; a Dow's Tapir (*Tapirus dowii* ♂) from Venezuela, presented by Mr. Reginald Pringle; a Spotted Ichneumon (*Herpestes nepalensis*) from Nepal, presented by Mr. John Walker; two Clapperton's Francolins (*Francolinus clappertoni*) from West Africa, presented by Major H. Wade Dalton; two Chukar Partridges (*Caccabis chukar*) from North-West India, presented by Lieut.-Col. C. Swinhoe; a Herring Gull (*Larus argentatus*), European, presented by Miss Laura Dunnage; two Barn Owls (*Strix flammea*), British, presented by Mr. R. Church; two Hoary Snakes (*Coronella cana*) from South Africa, presented by Mr. E. Watson; two Wattled Cranes (*Grus carunculata*) from South Africa, two Spur-winged Geese (*Plectropterus gambensis*), four Vinaceous Turtle Doves (*Turtur vinaceus*), three Harlequin Quails (*Coturnix histrionica* ♂ ♂ ♀) from West Africa, deposited; a Grey-cheeked Mangabey (*Cercocebus albigena* ♂) from West Africa, two White Cranes (*Grus leucogeranus*) from India, a Cabot's Horned Tragopan (*Cerionis caboti* ♂) from China, a Banded Gymnogene (*Polyboroides typicus*) from Africa, two Yucatan Blue Jays (*Cyanocitta yucatanica*) from Yucatan, two Axolotls (*Siredon mexicanus*) from Mexico, purchased; a Moustache Monkey (*Cercopithecus cephus*) from West Africa, received in exchange; a Maholi Galago (*Galago maholi*), seven Coypus (*Myopotamus coypus*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

WHITE SPOTS UPON VENUS.—Four years since M. Trouvelot drew attention to two remarkable white spots which he had observed on opposite limbs of Venus, near the extremity of the cusps, from November 13, 1877, to February 7, 1878. The